

平成 25 年度 理論天文学特別講義 VII の開講について

An Intensive course in Theoretical Astrophysics VII

An Intensive course in Theoretical Astrophysics VII (H Shibahashi together with a guest speaker) will be given on every Wednesday 13:00–14:30 starting May 15 and ending June 26 at the lecture room #1043 of the School of Science Bldg. 1 Area C. Registration should be done by the first day of the course.

下記の通り、理論天文学特別講義 VII(担当:柴橋博資教授)を集中講義として行います。集中講義の前日までに指定様式を理学系研究科大学院担当窓口にご提出ください。

日時:平成 25 年 5 月 15 日(水)～6 月 26 日(水)毎週水曜日 13:00–14:30

講義室:理学部 1 号館中央棟 10 階 1043 号室(天文学専攻 大学院講義室)

○ Course Objectives/Overview (授業の目標・概要)

A series of lectures about the internal structure and evolution of stars are given with English, covering a wide range of topics from the underlying physical process to remarkable progress in asteroseismology.

○ Syllabus (授業計画)

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| 1. Global properties of stars | 3.2 Birth of nuclear reactions |
| 1.1 Distances | 3.3 Core hydrogen burning |
| 1.2 Luminosity | 4. Advanced phase of evolution |
| 1.3 Effective temperature | 4.1 Low and intermediate mass stars |
| 1.4 Spectral type | 4.1.1 H-shell burning |
| 1.5 Chemical composition | 4.1.2 Red giants phase |
| 1.6 Stellar mass | 4.1.3 Helium burning |
| 1.7 HR diagram | 4.1.4 Thermal pulses |
| 2. Internal structure | 4.2 Massive stars |
| 2.1 Hydrostatic equilibrium | 4.2.1 Successive burning reactions |
| 2.2 Energy transfer | 4.2.2 Supernova |
| 2.3 Energy conservation | 5. Summary in the HR diagram |
| 2.4 EOS for a non-degenerate gas | 6. An introduction to asteroseismology |
| 2.5 EOS for a degenerate gas | 6.1 Characteristic timescales |
| 2.6 Opacity | 6.2 Mathematical description |
| 2.7 Nuclear reactions | 6.3 Physical description of oscillation modes |
| 2.7.1 Production of energy | 6.4 Pulsating stars in the HR diagram |
| 2.7.2 Nucleosynthesis | 6.5 Result |
| 3. Evolution from birth to the main sequence | |
| 3.1 Gravitational contraction | |

集中講義 履修届

| 専攻名 | 学生証番号 | 氏名 |
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| 開講専攻名 | 科目番号 | 科目名 | 担当教員 | 単位数 | 開講日 |
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